



JAN 16 2002

#7
22908-1228B

SEQUENCE LISTING

Nemerow, Glen R.
Li, Erguang

<120> BIFUNCTIONAL MOLECULES AND VECTORS COMPLEXED THEREWITH FOR TARGETED GENE DELIVERY

<130> 22908-1228

<140> Herewith
<141> 2001-07-10<150> 09/613,017)
<151> 2000-07-10

<160> 33

<170> FastSEQ for Windows Version 4.0

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<212> DNA
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<222> (28)...(1395)
<223> DAV-1 heavy chain, penton base monoclonal antibody

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	Leu Leu Ser Gly Thr Ala Gly Val His Ser Glu Val Gln Leu Gln Gln	
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	tca gga cct gag ctg gtg aaa cct ggg gcc tca gtg aag ata tcc tgc	150
	Ser Gly Pro Glu Leu Val Lys Pro Gly Ala Ser Val Lys Ile Ser Cys	
	30 35 40	
	aag gct tct gga tac aca ttc act gac tac aac atg cac tgg gtg aag	198
	Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr Asn Met His Trp Val Lys	
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	cag agc cat gga aag agc ctt gag tgg att gga tat att tat cct tac	246
	Gln Ser His Gly Lys Ser Leu Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr	
	60 65 70	
	aaa ggt ggt act ggc tac aac cag aag ttc aag agc aag gcc aca ttg	294
	Lys Gly Gly Thr Gly Tyr Asn Gln Lys Phe Lys Ser Lys Ala Thr Leu	
	75 80 85	
	aca aca gac agt tcc tcc aac aca gcc tac atg gag ctc cgc agc ctg	342
	Thr Thr Asp Ser Ser Asn Thr Ala Tyr Met Glu Leu Arg Ser Leu	
	90 95 100 105	
	aca tct gat gcc tct gca gtc tat tac tgt gca aga ggg att gct tac	390

Thr Ser Asp Ala Ser Ala Val Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr			
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tgg ggc caa ggg act ctg gtc act gtc tct gca gcc aaa acg aca ccc	438		
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala Ala Lys Thr Thr Pro			
125	130	135	
cca tct gtc tat cca ctg gcc cct gga tct gct gcc caa act aac tcc	486		
Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser			
140	145	150	
atg gtg acc ctg gga tgc ctg gtc aag ggc tat ttc cct gag cca gtg	534		
Met Val Thr Leu Gly Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val			
155	160	165	
aca gtg acc tgg aac tct gga tcc ctg tcc agc ggt gtg cac acc ttc	582		
Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe			
170	175	180	185
cca gct gtc ctg cag tct gac ctc tac act ctg agc agc tca gtg act	630		
Pro Ala Val Leu Gln Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr			
190	195	200	
gtc ccc tcc agc acc tgg ccc agc gag acc gtc acc tgc aac gtt gcc	678		
Val Pro Ser Ser Thr Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala			
205	210	215	
cac ccg gcc agc agc acc aag gtg gac aag aaa att gtg ccc agg gat	726		
His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp			
220	225	230	
tgt ggt tgt aag cct tgc ata tgt aca gtc cca gaa gta tca tct gtc	774		
Cys Gly Cys Lys Pro Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val			
235	240	245	
ttc atc ttc ccc cca aag ccc aag gat gtg ctc acc att act ctg act	822		
Phe Ile Phe Pro Pro Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr			
250	255	260	265
cct aag gtc acg tgt gtt gtg gta gac atc agc aag gat gat ccc gag	870		
Pro Lys Val Thr Cys Val Val Asp Ile Ser Lys Asp Asp Pro Glu			
270	275	280	
gtc cag ttc agc tgg ttt gta gat gat gtg gag gtg cac aca gct cag	918		
Val Gln Phe Ser Trp Phe Val Asp Asp Val Glu Val His Thr Ala Gln			
285	290	295	
acg caa ccc cgg gag gag cag ttc aac agc act ttc cgc tca gtc agt	966		
Thr Gln Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser			
300	305	310	
gaa ctt ccc atc atg cac cag gac tgg ctc aat ggc aag gag ttc aaa	1014		
Glu Leu Pro Ile Met His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys			
315	320	325	
tgc agg gtc aac agt gca gct ttc cct gcc ccc atc gag aaa acc atc	1062		
Cys Arg Val Asn Ser Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile			
330	335	340	345
tcc aaa acc aaa ggc aga ccg aag gct cca cag gtg tac acc att cca	1110		

Ser Lys Thr Lys Gly Arg Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro			
350	355	360	
cct ccc aag gag cag atg gcc aag gat aaa gtc agt ctg acc tgc atg		1158	
Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met			
365	370	375	
ata aca gac ttc ttc cct gaa gac att act gtg gag tgg cag tgg aat		1206	
Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn			
380	385	390	
ggg cag cca gcg gag aac tac aag aac act cag ccc atc atg gac aca		1254	
Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr			
395	400	405	
gat ggc tct tac ttc gtc tac agc aag ctc aat gtg cag aag agc aac		1302	
Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn			
410	415	420	425
tgg gag gca gga aat act ttc atc tgc tct gtg tta cat gag ggc ctg		1350	
Trp Glu Ala Gly Asn Thr Phe Ile Cys Ser Val Leu His Glu Gly Leu			
430	435	440	
cac aac cac cat act gag aag agc ctc tcc cac tct cct ggt aaa		1395	
His Asn His His Thr Glu Lys Ser Leu Ser His Ser Pro Gly Lys			
445	450	455	
tgatcccagt gtccttgag ccctctggc ctacaggact ctgtcaccta cctccacccc		1455	
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<222> (0)...(0)			
<223> DAV-1 heavy chain, penton base monoclonal antibody			
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Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys			
20 25 30			
Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe			
35 40 45			
Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu			
50 55 60			
Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn			
65 70 75 80			
Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Asp Ser Ser Asn			
85 90 95			
Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val			
100 105 110			
Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val			
115 120 125			
Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala			
130 135 140			

Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr Glu Lys
 435 440 445
 Ser Leu Ser His Ser Pro Gly Lys
 450 455

<210> 3
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 <212> DNA
 <213> Mouse

<220>
 <221> CDS
 <222> (13)...(726)
 <223> DAV-1 light chain, penton base monoclonal antibody

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tgg gtt cca ggc tcc act ggt gac att gtg ctg acc caa tct cca gct 99
 Trp Val Pro Gly Ser Thr Gly Asp Ile Val Leu Thr Gln Ser Pro Ala
 15 20 25

tct ttg gct gtg tct cta ggg cag agg gcc acc atc tcc tgc aag gcc Ser Leu Ala Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala 30 35 40 45	147
agc caa agt gtt gat tat gat ggt gat agt tat atg aac tgg tac caa Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln 50 55 60	195
cag aaa cca gga cag cca ccc aaa ctc ctc atc tat gct gca tcc aat Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn 65 70 75	243
tta gaa tct ggg atc cca gcc agg ttt agt ggc agt ggg tct ggg aca Leu Glu Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr 80 85 90	291
gac ttc acc ctc aac atc cat cct gtg gag gag gag gat gct gca acc Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Asp Ala Ala Thr 95 100 105	339
tat tac tgt cag caa act aat gag gat ccg tgg acg ttc ggt gga ggc Tyr Tyr Cys Gln Gln Thr Asn Glu Asp Pro Trp Thr Phe Gly Gly Gly 110 115 120 125	387
acc aag ctg gaa atc aaa cgg gct gat gct gca cca act gta tcc atc Thr Lys Leu Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile 130 135 140	435
ttc cca cca tcc agt gag cag tta aca tct gga ggt gcc tca gtc gtg Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val 145 150 155	483
tgc ttc ttg aac aac ttc tac ccc aaa gac atc aat gtc aag tgg aag Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys 160 165 170	531
att gat ggc agt gaa cga caa aat ggc gtc ctg aac agt tgg act gat Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp 175 180 185	579
cag gac agc aaa gac agc acc tac agc atg agc agc acc ctc acg ttg Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu 190 195 200 205	627
acc aag gac gag tat gaa cga cat aac agc tat acc tgt gag gcc act Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr 210 215 220	675
cac aag aca tca act tca ccc att gtc aag agc ttc aac agg aat gag His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Asn Glu 225 230 235	723
tgt tagagacaaa ggtcctgaga cgccaccacc agctccccag ctccatccta Cys	776
tctcccttc taaggcttg gaggcttct cgagcgtaa agggcgaatt ccagc	831

<210> 4
<211> 238

<212> PRT
 <213> Mouse

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> DAV-1 light chain, penton base monoclonal antibody

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 Gly Ser Thr Gly Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala
 20 25 30
 Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala Ser Gln Ser
 35 40 45
 Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro
 50 55 60
 Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn Leu Glu Ser
 65 70 75 80
 Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
 85 90 95
 Leu Asn Ile His Pro Val Glu Glu Asp Ala Ala Thr Tyr Tyr Cys
 100 105 110
 Gln Gln Thr Asn Glu Asp Pro Trp Thr Phe Gly Gly Thr Lys Leu
 115 120 125
 Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro
 130 135 140
 Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu
 145 150 155 160
 Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly
 165 170 175
 Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser
 180 185 190
 Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp
 195 200 205
 Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr
 210 215 220
 Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys
 225 230 235

<210> 5
 <211> 1314
 <212> DNA
 <213> Mouse

<220>
 <221> CDS
 <222> (0)...(1314)
 <223> Portion of DAV-1 heavy chain used for fusion protein
 bifunctional antibody

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 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Ser Gly Thr Ala Gly
 1 5 10 15
 gtc cac tct gag gtc cag ctt cag cag tca gga cct gag ctg gtg aaa 96
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30

cct	ggg	gcc	tca	gtg	aag	ata	tcc	tgc	aag	gct	tct	gga	tac	aca	ttc		144
Pro	Gly	Ala	Ser	Val	Lys	Ile	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe		
35																45	
act	gac	tac	aac	atg	cac	tgg	gtg	aag	cag	agc	cat	gga	aag	agc	ctt		192
Thr	Asp	Tyr	Asn	Met	His	Trp	Val	Lys	Gln	Ser	His	Gly	Lys	Ser	Leu		
50																60	
gag	tgg	att	gga	tat	att	tat	cct	tac	aaa	ggt	ggt	act	ggc	tac	aac		240
Glu	Trp	Ile	Gly	Tyr	Ile	Tyr	Pro	Tyr	Lys	Gly	Gly	Thr	Gly	Tyr	Asn		
65																80	
cag	aag	ttc	aag	agc	aag	gcc	aca	ttg	aca	aca	gac	agt	tcc	tcc	aac		288
Gln	Lys	Phe	Lys	Ser	Lys	Ala	Thr	Leu	Thr	Thr	Asp	Ser	Ser	Ser	Asn		
85																95	
aca	gcc	tac	atg	gag	ctc	cgc	agc	ctg	aca	tct	gat	gcc	tct	gca	gtc		336
Thr	Ala	Tyr	Met	Glu	Leu	Arg	Ser	Leu	Thr	Ser	Asp	Ala	Ser	Ala	Val		
100																110	
tat	tac	tgt	gca	aga	ggg	att	gct	tac	tgg	ggc	caa	ggg	act	ctg	gtc		384
Tyr	Tyr	Cys	Ala	Arg	Gly	Ile	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val		
115																125	
act	gtc	tct	gca	gcc	aaa	acg	aca	ccc	cca	tct	gtc	tat	cca	ctg	gcc		432
Thr	Val	Ser	Ala	Ala	Lys	Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu	Ala		
130																140	
cct	gga	tct	gct	gcc	caa	act	aac	tcc	atg	gtg	acc	ctg	gga	tgc	ctg		480
Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys	Leu		
145																160	
gtc	aag	ggc	tat	ttc	cct	gag	cca	gtg	aca	gtg	acc	tgg	aac	tct	gga		528
Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser	Gly		
165																175	
tcc	ctg	tcc	agc	ggt	gtg	cac	acc	ttc	cca	gct	gtc	ctg	cag	tct	gac		576
Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Asp		
180																190	
ctc	tac	act	ctg	agc	agc	tca	gtg	act	gtc	ccc	tcc	agc	acc	tgg	ccc		624
Leu	Tyr	Thr	Leu	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Thr	Trp	Pro			
195																205	
agc	gag	acc	gtc	acc	tgc	aac	gtt	gcc	cac	ccg	gcc	agc	agc	acc	aag		672
Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr	Lys		
210																220	
gtg	gac	aag	aaa	att	gtg	ccc	agg	gat	tgt	ggt	tgt	aag	cct	tgc	ata		720
Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys	Ile		
225																240	
tgt	aca	gtc	cca	gaa	gta	tca	tct	gtc	ttc	atc	ttc	ccc	cca	aag	ccc		768
Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys	Pro		
245																255	
aag	gat	gtg	ctc	acc	att	act	ctg	act	cct	aag	gtc	acg	tgt	gtt	gtg		816
Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val	Val		
260																270	

gta gac atc agc aag gat gat ccc gag gtc cag ttc agc tgg ttt gta Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val 275 280 285	864
gat gat gtg gag gtg cac aca gct cag acg caa ccc cg ^g gag gag cag Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln 290 295 300	912
ttc aac agc act ttc cgc tca gtc agt gaa ctt ccc atc atg cac cag Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln 305 310 315 320	960
gac tgg ctc aat ggc aag gag ttc aaa tgc agg gtc aac agt gca gct Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala 325 330 335	1008
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aag gct cca cag gtg tac acc att cca cct ccc aag gag cag atg gcc Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala 355 360 365	1104
aag gat aaa gtc agt ctg acc tgc atg ata aca gac ttc ttc cct gaa Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu 370 375 380	1152
gac att act gtg gag tgg cag tgg aat ggg cag cca g ^c cg gag aac tac Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr 385 390 395 400	1200
aag aac act cag ccc atc atg gac aca gat ggc tct tac ttc gtc tac Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr 405 410 415	1248
agc aag ctc aat gtg cag aag agc aac tgg gag gca gga aat act ttc Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe 420 425 430	1296
atc tgc tct gtg tta cat Ile Cys Ser Val Leu His 435	1314

<210> 6
<211> 438
<212> PRT
<213> Mouse

<220>
<221> PEPTIDE
<222> (0)...(0)
<223> Portion of DAV-1 heavy chain used for fusion protein
bifunctional antibody

<400> 6
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Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His
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<210> 7
 <211> 157
 <212> PRT
 <213> Human

<220>
<221> PEPTIDE
<222> (0)...(0)
<223> Tumor necrosis factor-alpha (TNF alpha, mature peptide)

<400> 7
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val
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Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
20 25 30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
35 40 45
Val Val Pro Ser Glu Gly Leu Tyr Leu Tyr Ser Gln Val Leu Phe
50 55 60
Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65 70 75 80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala
85 90 95
Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys
100 105 110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
115 120 125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
130 135 140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145 150 155

<210> 8
<211> 70
<212> PRT
<213> Human

<220>
<221> PEPTIDE
<222> (0)...(0)
<223> Human Insulin-like Growth Factor 1 sequence
(IGF-1, mature peptide)

<400> 8
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Val Cys Gly Asp Arg Gly Phe Tyr Phe Asn Lys Pro Thr Gly Tyr Gly
20 25 30
Ser Ser Ser Arg Arg Ala Pro Gln Thr Gly Ile Val Asp Glu Cys Cys
35 40 45
Phe Arg Ser Cys Asp Leu Arg Arg Leu Glu Met Tyr Cys Ala Pro Leu
50 55 60
Lys Pro Ala Lys Ser Ala
65 70

<210> 9
<211> 53
<212> PRT
<213> Human

<220>
<221> PEPTIDE
<222> (0)...(0)
<223> Epidermal Growth Factor (EGF, mature peptide)

<400> 9
 Asn Ser Asp Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
 1 5 10 15
 Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
 20 25 30
 Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
 35 40 45
 Trp Trp Glu Leu Arg
 50

<210> 10
 <211> 164
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Stem Cell Factor (SCF, mature peptide)

<400> 10
 Glu Gly Ile Cys Arg Asn Arg Val Thr Asn Asn Val Lys Asp Val Thr
 1 5 10 15
 Lys Leu Val Ala Asn Leu Pro Lys Asp Tyr Met Ile Thr Leu Lys Tyr
 20 25 30
 Val Pro Gly Met Asp Val Leu Pro Ser His Cys Trp Ile Ser Glu Met
 35 40 45
 Val Val Gln Leu Ser Asp Ser Leu Thr Asp Leu Leu Asp Lys Phe Ser
 50 55 60
 Asn Ile Ser Glu Gly Leu Ser Asn Tyr Ser Ile Ile Asp Lys Leu Val
 65 70 75 80
 Asn Ile Val Asp Asp Leu Val Glu Cys Val Lys Glu Asn Ser Ser Lys
 85 90 95
 Asp Leu Lys Lys Ser Phe Lys Ser Pro Glu Pro Arg Leu Phe Thr Pro
 100 105 110
 Glu Glu Phe Phe Arg Ile Phe Asn Arg Ser Ile Asp Ala Phe Lys Asp
 115 120 125
 Phe Val Val Ala Ser Glu Thr Ser Asp Cys Val Val Ser Ser Thr Leu
 130 135 140
 Ser Pro Glu Lys Asp Ser Arg Val Ser Val Thr Lys Pro Phe Met Leu
 145 150 155 160
 Pro Pro Val Ala

<210> 11
 <211> 597
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and TNF alpha mature peptide

<400> 11
 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His Glu Phe Val Arg Ser Ser Ser Arg Thr Pro
 435 440 445
 Ser Asp Lys Pro Val Ala His Val Val Ala Asn Pro Gln Ala Glu Gly
 450 455 460
 Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala Leu Leu Ala Asn Gly
 465 470 475 480
 Val Glu Leu Arg Asp Asn Gln Leu Val Val Pro Ser Glu Gly Leu Tyr
 485 490 495
 Leu Ile Tyr Ser Gln Val Leu Phe Lys Gly Gln Gly Cys Pro Ser Thr
 500 505 510
 His Val Leu Leu Thr His Thr Ile Ser Arg Ile Ala Val Ser Tyr Gln
 515 520 525

Thr Lys Val Asn Leu Leu Ser Ala Ile Lys Ser Pro Cys Gln Arg Glu
 530 535 540
 Thr Pro Glu Gly Ala Glu Ala Lys Pro Trp Tyr Glu Pro Ile Tyr Leu
 545 550 555 560
 Gly Gly Val Phe Gln Leu Glu Lys Gly Asp Arg Leu Ser Ala Glu Ile
 565 570 575
 Asn Arg Pro Asp Tyr Leu Asp Phe Ala Glu Ser Gly Gln Val Tyr Phe
 580 585 590
 Gly Ile Ile Ala Leu
 595

<210> 12
 <211> 510
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and IGF-1 mature peptide

<400> 12
 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Asp Ser Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln

305	310	315	320
Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala			
325	330	335	335
Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro			
340	345	350	350
Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala			
355	360	365	365
Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu			
370	375	380	380
Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr			
385	390	395	400
Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr			
405	410	415	415
Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe			
420	425	430	430
Ile Cys Ser Val Leu His Glu Phe Gly Pro Glu Thr Leu Cys Gly Ala			
435	440	445	445
Glu Leu Val Asp Ala Leu Gln Phe Val Cys Gly Asp Arg Gly Phe Tyr			
450	455	460	460
Phe Asn Lys Pro Thr Gly Tyr Gly Ser Ser Ser Arg Arg Ala Pro Gln			
465	470	475	480
Thr Gly Ile Val Asp Glu Cys Cys Phe Arg Ser Cys Asp Leu Arg Arg			
485	490	495	495
Leu Glu Met Tyr Cys Ala Pro Leu Lys Pro Ala Lys Ser Ala			
500	505	510	510

<210> 13

<211> 493

<212> PRT

<213> Artificial Sequence

<220>

<223> Fusion protein with N-terminal portion of DAV-1 heavy chain
and EGF mature peptide

<400> 13

Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly			
1	5	10	15
Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys			
20	25	30	
Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe			
35	40	45	
Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu			
50	55	60	
Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn			
65	70	75	80
Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn			
85	90	95	
Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val			
100	105	110	
Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val			
115	120	125	
Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala			
130	135	140	
Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu			
145	150	155	160
Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly			
165	170	175	
Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp			
180	185	190	

Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His Glu Phe Asn Ser Asp Ser Glu Cys Pro Leu
 435 440 445
 Ser His Asp Gly Tyr Cys Leu His Asp Gly Val Cys Met Tyr Ile Glu
 450 455 460
 Ala Leu Asp Lys Tyr Ala Cys Asn Cys Val Val Gly Tyr Ile Gly Glu
 465 470 475 480
 Arg Cys Gln Tyr Arg Asp Leu Lys Trp Trp Glu Leu Arg
 485 490

<210> 14

<211> 613

<212> PRT

<213> Artificial Sequence

<220>

<223> Fusion protein with N-terminal portion of DAV-1 heavy chain
and SCF mature peptide

<400> 14

Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Asn

	85		90		95										
Thr	Ala	Tyr	Met	Glu	Leu	Arg	Ser	Leu	Thr	Ser	Asp	Ala	Ser	Ala	Val
			100		105							110			
Tyr	Tyr	Cys	Ala	Arg	Gly	Ile	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val
			115		120						125				
Thr	Val	Ser	Ala	Ala	Lys	Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu	Ala
			130		135						140				
Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys	Leu
			145		150				155			160			
Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser	Gly
			165		170				175			175			
Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Asp
			180		185						190				
Leu	Tyr	Thr	Leu	Ser	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Thr	Trp	Pro
			195		200						205				
Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr	Lys
			210		215				220						
Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys	Ile
			225		230				235			240			
Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys	Pro
			245		250				250			255			
Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val	Val
			260		265						270				
Val	Asp	Ile	Ser	Lys	Asp	Asp	Pro	Glu	Val	Gln	Phe	Ser	Trp	Phe	Val
			275		280						285				
Asp	Asp	Val	Glu	Val	His	Thr	Ala	Gln	Thr	Gln	Pro	Arg	Glu	Glu	Gln
			290		295				300						
Phe	Asn	Ser	Thr	Phe	Arg	Ser	Val	Ser	Glu	Leu	Pro	Ile	Met	His	Gln
			305		310				315			320			
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Phe	Lys	Cys	Arg	Val	Asn	Ser	Ala	Ala
			325		330						335				
Phe	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Thr	Lys	Gly	Arg	Pro
			340		345						350				
Lys	Ala	Pro	Gln	Val	Tyr	Thr	Ile	Pro	Pro	Pro	Lys	Glu	Gln	Met	Ala
			355		360						365				
Lys	Asp	Lys	Val	Ser	Leu	Thr	Cys	Met	Ile	Thr	Asp	Phe	Phe	Pro	Glu
			370		375				380						
Asp	Ile	Thr	Val	Glu	Trp	Gln	Trp	Asn	Gly	Gln	Pro	Ala	Glu	Asn	Tyr
			385		390				395			400			
Lys	Asn	Thr	Gln	Pro	Ile	Met	Asp	Thr	Asp	Gly	Ser	Tyr	Phe	Val	Tyr
			405		410						415				
Ser	Lys	Leu	Asn	Val	Gln	Lys	Ser	Asn	Trp	Glu	Ala	Gly	Asn	Thr	Phe
			420		425						430				
Ile	Cys	Ser	Val	Leu	His	Glu	Phe	Cys	Arg	Tyr	Pro	Ala	Gln	Trp	Arg
			435		440				445						
Pro	Gln	Gly	Ile	Cys	Arg	Asn	Arg	Val	Thr	Asn	Asn	Val	Lys	Asp	Val
			450		455				460						
Thr	Lys	Leu	Val	Ala	Asn	Leu	Pro	Lys	Asp	Tyr	Met	Ile	Thr	Leu	Lys
			465		470					475			480		
Tyr	Val	Pro	Gly	Met	Asp	Val	Leu	Pro	Ser	His	Cys	Trp	Ile	Ser	Glu
			485		490					495					
Met	Val	Val	Gln	Leu	Ser	Asp	Ser	Leu	Thr	Asp	Leu	Leu	Asp	Lys	Phe
			500		505						510				
Ser	Asn	Ile	Ser	Glu	Gly	Leu	Ser	Asn	Tyr	Ser	Ile	Ile	Asp	Lys	Leu
			515		520						525				
Val	Asn	Ile	Val	Asp	Asp	Leu	Val	Glu	Cys	Val	Lys	Glu	Asn	Ser	Ser
			530		535						540				
Lys	Asp	Leu	Lys	Lys	Ser	Phe	Lys	Ser	Pro	Glu	Pro	Arg	Leu	Phe	Thr
			545		550					555			560		
Pro	Glu	Glu	Phe	Phe	Arg	Ile	Phe	Asn	Arg	Ser	Ile	Asp	Ala	Phe	Lys

565	570	575
Asp Phe Val Val Ala Ser Glu Thr Ser Asp Cys Val Val Ser Ser Thr		
580	585	590
Leu Ser Pro Glu Lys Asp Ser Arg Val Ser Val Thr Lys Pro Phe Met		
595	600	605
Leu Pro Pro Val Ala		
610		

<210> 15
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer for amplification of CH3 region of
DAV-1 heavy chain.

<400> 15
cctgctctgt gtttacatga ggg

23

<210> 16
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer for amplification of CH1 region of
DAV-1 heavy chain.

<400> 16
cccgagggtca tggagttag

19

<210> 17
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer for amplification of DAV-1 kappa chain
CL-A.

<400> 17
aagatggata cagttgggtgc

20

<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer for amplification of DAV-1 kappa chain
CL-B.

<400> 18
tgtcaagagc ttcaacagga

20

<210> 19
<211> 15
<212> PRT
<213> Adenovirus

<220>
<221> PEPTIDE
<222> (0)...(0)
<223> Peptide spanning integrin binding site on penton base.

<400> 19
Met Asn Asp His Ala Ile Arg Gly Asp Thr Phe Ala Thr Arg Ala
1 5 10 15

<210> 20
<211> 9
<212> PRT
<213> Adenovirus

<220>
<221> PEPTIDE
<222> (0)...(0)
<223> Epitope on penton base integrin binding site recognized by DAV-1.

<400> 20
Ile Arg Gly Asp Thr Phe Ala Thr Arg
1 5

<210> 21
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning DAV-1 heavy chain for whole antibody or Fab'2 constructs.

<400> 21
ggtaccggcca ccatggatg gagctggatc t

31

<210> 22
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning DAV-1 heavy chain for whole antibody construct.

<400> 22
gaattcatgt aacacagagc agga

24

<210> 23
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning DAV-1 light chain for whole antibody or Fab'2 constructs.

<400> 23
aagcttgcca ccatggagac agacacaatc ctgct

35

<210> 24

```

<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning DAV-1 light chain for
whole antibody or Fab'2 constructs.

<400> 24
tctagatgtc tctaacaactc attcctgt                                28

<210> 25
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning DAV-1 heavy chain for
Fab'2 constructs.

<400> 25
gaattctgat acttctggga ctgt                                24

<210> 26
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning TNF $\alpha$  into DAV-1/TNF $\alpha$ 
fusion construct.

<400> 26
gaattcgtca gatcatcttc tcgaac                                26

<210> 27
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning TNF $\alpha$  into DAV-1/TNF $\alpha$ 
fusion construct.

<400> 27
gaattctaca gggcaatgat cccaaa                                26

<210> 28
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning IGF-1 into DAV-1/IGF-1
fusion construct.

<400> 28
gaattcggac cgtagacgct ctgcgg                                26

<210> 29

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<211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR antisense primer for subcloning IGF-1 into DAV-1/IGF-1 fusion construct.

 <400> 29
 gaattctaaag ctgacttggc aggctt 26

 <210> 30
 <211> 96
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR sense primer for subcloning EGF into DAV-1/EGF fusion construct.

 <400> 30
 gaattcaata gtgactctga atgtcccttg tcccacgatg ggtactgcct ccatgatggt 60
 gtgtgcatgt atattgaagc attggacaag tatgca 96

 <210> 31
 <211> 98
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR antisense primer for subcloning EGF into DAV-1/EGF fusion construct.

 <400> 31
 gaattcttagc gcagttccca ccacttcagg tctcggtact gacatcgctc cccgatgtag 60
 ccaacaacac agttgcacatgc atacttgtcc aatgcttc 98

 <210> 32
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR sense primer for subcloning SCF into DAV-1/SCF fusion construct.

 <400> 32
 gcccccgcaa gggatctgca ggaatcg 27

 <210> 33
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR antisense primer for subcloning SCF into DAV-1/SCF fusion construct.

 <400> 33
 tcttagagtgc aacagggggt aacata 26